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| APPLICATION NO.         | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |
|-------------------------|-------------|----------------------|----------------------|------------------|
| 09/750,036              | 12/29/2000  | Suk-Joong Lee        | P 275438 P00H9025/US | 6463             |
| 909                     | 7590        | 11/02/2004           | EXAMINER             |                  |
| PILLSBURY WINTHROP, LLP |             |                      | SIANGCHIN, KEVIN     |                  |
| P.O. BOX 10500          |             |                      | ART UNIT             |                  |
| MCLEAN, VA 22102        |             |                      | PAPER NUMBER         |                  |

2623

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/750,036

Applicant(s)

LEE ET AL.

Examiner

Kevin Siangchin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## Detailed Action

### *Drawings*

#### Response to Drawing Corrections

1. The drawing corrections and accompanying replacement drawings, filed May 26, 2004 (Paper No. 9), have been acknowledged. The corrections to Figs. 5A and 5C-5F adequately resolve the issues discussed in the previous Office Action, related to these figures. All objections related to these figures (previous Office Action, page 2, items (b)-(c)) are thus withdrawn. The Applicant's amendments to specification (i.e. the removal of the reference number **22** from the specification) overcome the objections related to *R/G/B extraction unit 22* (previous Office Action, page 2, item (d)).
2. The Applicant's arguments (Paper No. 9, page 17, paragraph 2) with respect to the objections of Figure 4 have been acknowledged. It is understood that the equations, depicted in step **150** of Figure 4, express the mathematical relationship between the various variables. Though these equations are mathematically correct, the depiction in Fig. 4 does not accurately reflect the steps taken to obtain Rq, Gq, Bq, Rres, Gres, and Bres, as per the description of step **150** on page 7, lines 15-17 of the original Specification. There the Applicant describes that "[a]t step 150, the added color values (Rb,Gn,Bn) are divided with a loss value LossV to obtain the quotient color values (Rq,Gq,Bq) and the remainder color values [– i.e. (Rres,Gres,Bres)]". Therefore, while the expression in step **150** is correct, it is not indicative of how Rq, Gq, Bq, Rres, Gres, and Bres are obtained. From the specification, one concludes that (Rq,Gq,Bq) is the result of the division of (Rb,Gn,Bn) by LossV – presumably, the integer portions of the thusly obtained quotients. (Rres,Gres,Bres), on the other hand, is the remainder of that division. The specification does not disclose any subtraction of (Rres,Gres,Bres) from (Rb,Gn,Bn), during the derivation of (Rq,Gq,Bq). Again, the expression in step **150**, appears, at first blush, to indicate that the calculation of (Rq,Gq,Bq) necessitates *a priori* knowledge of (Rres,Gres,Bres). The Applicant does not disclose this.
3. With the exception of step **150**, all other blocks indicate steps taken during the illustrated algorithm's flow of execution. However, in step **150**, the Applicant chooses instead to give a set of mathematical expressions, which,

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in and of themselves, are not indicative of the disclosed steps taken. The objections to Figure 4, therefore, remain. These may be easily overcome in future correspondences by indicating the steps taken to arrive at (Rq,Gq,Bq) and (Rres,Gres,Bres), rather than giving an expression that relates these values.

#### Objections

4. The drawings are objected to because of the following. Figure 4 is objected for the reasons given above. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

#### Response to Amendments to the Specification

5. The amendments to the Specification filed on May 26, 2004 (Paper No. 9) have been acknowledged. These amendments do not introduce any new matter. In light of these amendments and the Applicant's remarks, all objections relating to the original specification have been withdrawn.

### ***Claims***

#### Response to Amendments to the Claims

6. The amendments to the Claims filed on May 26, 2004 (Paper No. 9) have been acknowledged. Claims 1-16 have been amended accordingly.

#### Response to Arguments and Remarks

7. The Applicant's remarks relating to the Drawings and Specification have been addressed above.

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8. With respect to the claim objections, the amendments adequately resolve the issues discussed in the previous Office Action. Claims 3 and 11 notwithstanding, these amendments also adequately resolve most of the issues brought up in U.S.C. § 112(2) rejections of the previous Office Action. Therefore, all prior claim objections and U.S.C. § 112(2) rejections of Claims 1-2, 4-10 and 12-16 are withdrawn.

9. Although Claims 3 and 11 are clearer as a result of the amendments, they are only marginally so. The addition of the word “previously” does resolve the circuitousness of the original language. However, the Examiner’s suggestion of the current language should have gone further, so as to indicate that the “added remainder color values” are the result of a previous iteration of step (c). The current language does not sufficiently indicate this. The Applicant could, for example, refine the current language of Claims 3 in the following way:

A method according to claims 1 or claim 2, further comprising, before (c):  
adding remainder color values, obtained from a previous execution of (c), to the vertical difference values.

Similar changes could be made to Claim 11.

*A Response to the Applicant’s Allegations of Impermissible Hindsight.*

10. Applicant’s arguments filed May 26, 2004 (Paper No. 9) have been fully considered but they are not persuasive.

11. In response to Applicant’s argument that the Examiner’s conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant’s disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

12. Differential Pulse Code Modulation (DPCM) is an encoding technique that has been known at least since the 1940’s and the days of Claude Shannon’s pioneering work at Bell Labs. It since been shown to be compatible with a multitude of compression techniques and encoding schemes. It has been incorporated into the JPEG compression standard since the first definition of the standard in the mid 1980’s. The compatibility of DPCM with other compression techniques is, therefore, well known and well documented. The teachings of Houle merely lend additional support to this fact. Indeed, the Examiner relied on the teachings of Houle for the suggestion of DPCM’s

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compatibility with Applicant's Admitted Prior Art (APA) – the latter being a compression technique – *not* any suggestion presented in the Applicant's disclosure. See paragraph 14 on page 5 of the previous Office Action. Given the vast amount of literature available, at the time of the Applicant's claimed invention, it would have been well within the capabilities of one of ordinary skill in the art to combine the method of APA and the DPCM of Houle's teachings. Moreover, the teachings of APA and Houle are clearly analogous<sup>1</sup>. Therefore, Houle's suggestion of compatibility and the known advantages of DPCM would have been enough to motivate one of ordinary skill in the art to carry out such a combination.

Rejections Under 35 U.S.C. § 112(2)

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 3 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

15. *The following is in regard to Claims 3 and 11.* These rejections follow from the discussion in the previous section. See above.

Rejections Under 35 U.S.C. § 103(a)

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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<sup>1</sup> It has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The disclosures of both Houle and APA are directed toward compression or encoding methodologies. As such, they are clear analogous.

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17. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art as described in the *General Background and Related Art* on pages 1-4 in the applicant's disclosure (hereinafter, Prior Art), in view of Houle (U.S. Patent 5,710,719).

18. *The following is in regard to Claims 1-16.* The amendments merely address the objections and U.S.C. § 112(2) rejections made in the previous Office Action. They do not substantively alter the subject matter proposed originally. The limitations of "horizontal" that appear in the amended claims were considered in the previous rejections. The rejections of the amended claims thus follow an identical line of reasoning as the rejections of the original claims. For the sake of brevity, the details of these rejections will be omitted. The Applicant is kindly referred to the appropriate sections of the previous Office Action (e.g. pages 5-8).

### ***Conclusion***

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

20. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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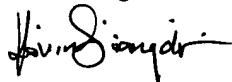
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Siangchin whose telephone number is (703)305-7569. The examiner can normally be reached on 9:00am - 5:30pm, Monday - Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703)308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

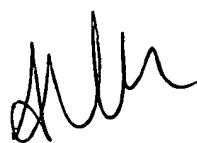
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Kevin Siangchin



Examiner  
Art Unit 2623

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